NEF

N40 ENT

FOR INDUSTRIAL APPLICATIONS
4 CYLINDERS IN LINE - DIESEL CYCLE
107 kW (145 CV) @ 2300 rpm
490 Nm @ 1200 rpm

TECHNOLOGICAL EXCELLENCE

IVECO MOTORS

N40 ENT FOR INDUSTRIAL APPLICATIONS

Technical code		**F4AE0484B *D1..**
Thermodynamic cycle		Diesel 4 stroke - C.R..
Air intake		TAA
Arrangement		4L
Bore x Stroke	mm	102 X 120
Total displacement	l	3.9
Valves per cylinder		4
Cooling		liquid
Direction of rotation (viewed facing flywheel)		CCW
Compression ratio		17.5 : 1
Rotation mass moment of inertia (without flywheel)	kgm^2	0.19
Standard flywheel inertia	kgm^2	0.71

Air induction

Max suggested intake restriction with clean air filter	kPa(bar)	3.5 (0.035)
Max allowable restriction with dirty air filter	kPa(bar)	6.5 (0.065)
Air requirement for combustion at 100% load/rated speed	kg/h (m^3/h)	725 (620)
Turbocharging pressure at full load/rated speed	kPa(bar)	140 (1.4)
Turbocharging air max temperature (engine inlet)	°C	50 (at 25°C amb.)
Heat rejected to intercooler at maximum power	kJ/s(kcal/h)	56 (48,000)
Intercooler system max pressure drop	kPa(bar)	7 (0.07)

Exhaust system

Max allowable backpressure	kPa(bar)	10 (0.1)
Max exhaust temperature at full load/rated speed	°C	510
Exhaust flow at max output	kg/h	755

Lubrication system

Minimum oil pressure at idle	kPa(bar)	70 (0.7)
Max oil temperature at full load/rated speed	°C	120
Engine angularity limits continuous operation: max front up and front down	0/360	35
max left hand and right hand	0/360	35
Total system capacity including pipes, filters etc.	liters	12.8

Cooling system

Coolant capacity (engine only)	liters	8.5
Water pump flow at rated speed	m^3/h	11
Heat to reject by heat exchanger at max power	kJ/s(kcal/h)	56 (18,000)
Thermostat (modulating range)	°C	83 ÷ 95
Cooling liquid max temperature	°C	103
Min/max inner pressure in the cooling circuit	kPa(bar)	30/100 (0.3/1)
External cooling system max pressure drop	kPa(bar)	35 (0.35)

Fuel system

Injection system		Common Rail
Gas oil max intake restriction	kPa(bar)	35 (0,35)
Gas oil max intake temperature	°C	70 (at 25°C amb.)

Electrical system

Voltage	V	24

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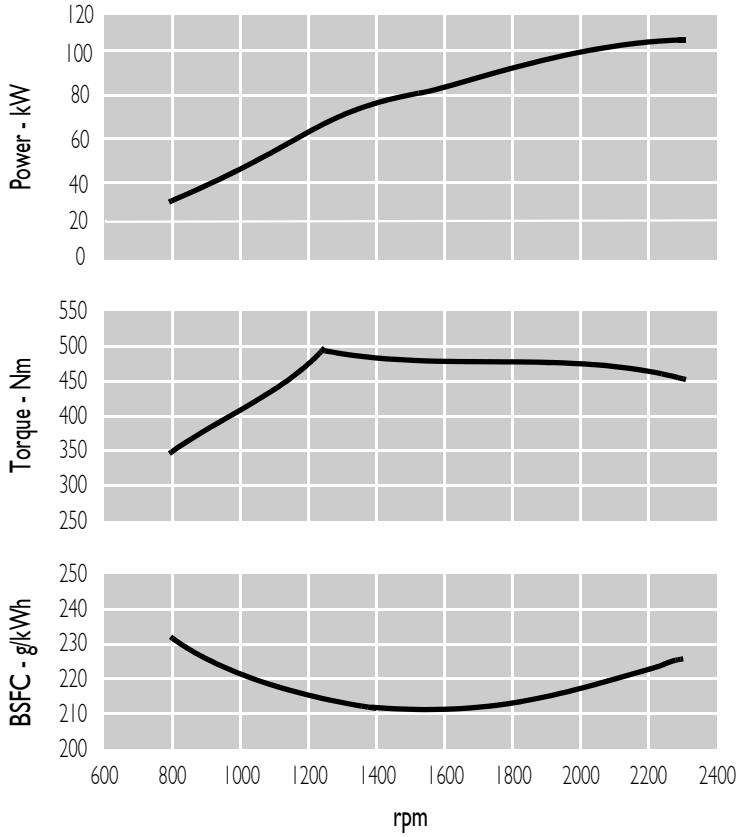
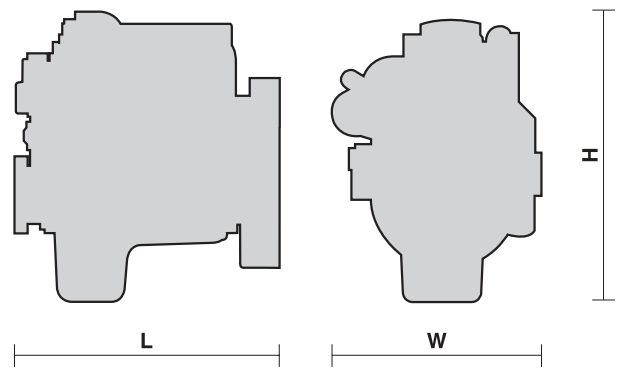
Maximum rating *	kW(CV)	107 (145)
At speed	rpm	2300
Maximum torque	Nm(kgm)	490 (50)
At speed	rpm	1200
Maximum no load governed speed at max rating	rpm	2450
Minimum idling speed	rpm	750
Mean piston speed at rated speed	m/s	9.2
BMEP at max torque	kg/cm^2	16.1
Available certifications		EC 97/68 Phase 2 - EPA Tier 2
Specific fuel consumption at full load (best value)	g/kWh @ rpm	209 @ 1400 / 1600
Oil consumption at max rating	(% of fuel consumption)	0.1
Noise at max rating (ISO 3744)	dBA	91
Minimum starting temperature without auxiliaries	°C	-25
Oil and oil filter maintenance interval for replacement	hours	500
Dry weight (standard configuration)	kg	410

FOR INFORMATION ON THE AVAILABLE RATINGS NOT LISTED IN THIS DOCUMENT PLEASE CONTACT THE IVECO MOTORS SALES NETWORK.

*** Power** *at flywheel according to 97/68 EC (without fan), after 50 hours running, 3% tolerance, fuel Diesel EN 590*
Test conditions : *ISO 3046/1, 25 °C air temperature, 100 kPa atmospheric pressure, 30 % relative humidity - Applicable also to DIN 6271, BS 5514, SAE J1349 Standards.*





L = 810 mm

W = 678 mm

H = 901 mm

N40 ENT FOR INDUSTRIAL APPLICATIONS

Standard configuration

Flywheel housing	SAE	3
Flywheel size	inch	11.5
Intake manifold location		left side / frontward inlet
Exhaust manifold / turbocharger location		right side / frontward outlet
Turbocharger		waste gate controlled
Turbocharger location		low
Fan transmission ratio		1.41 : 1
Distance between fan - crankshaft centers	mm	296
Fuel filter	n°	1 - left side
Fuel prefilter		included
Fuel pump		included
Oil filter	n°	1 - right side
Oil sump		sheet steel / front well
Oil vapours blow-by circuit		on flywheel housing
Oil heat exchanger		built in the crankcase
Oil filler		on timing cover frontward
Exhaust counter flange		included
Starting motor		24 V - 4 kW
Alternator		24 V - 70 A
Engine stop device		by electronic central unit
Wiring harness		interface wiring loom with accessories
Power take off (PTO)		optional
PTO transmission ratio		1.03 : 1
PTO maximum available torque		240 Nm (SAE B 13 teeth)
Painting	colour	grey

Not included in the standard configuration

Battery - minimum capacity recommended	130 Ah (24 V)
Battery - minimum cold cranking capacity recommended	500 A (24 V)

IVECO MOTORS OFFERS THE WIDEST AVAILABILITY OF ENGINE BUILD OPTIONS TO CUSTOMER SPECIFIC REQUIREMENTS WITHIN THE ENGINE SUPPLY. TO FIND OUT MORE ABOUT THE CONFIGURATIONS AND ACCESSORIES WHICH ARE AVAILABLE, CONTACT THE IVECO MOTORS SALES NETWORK.

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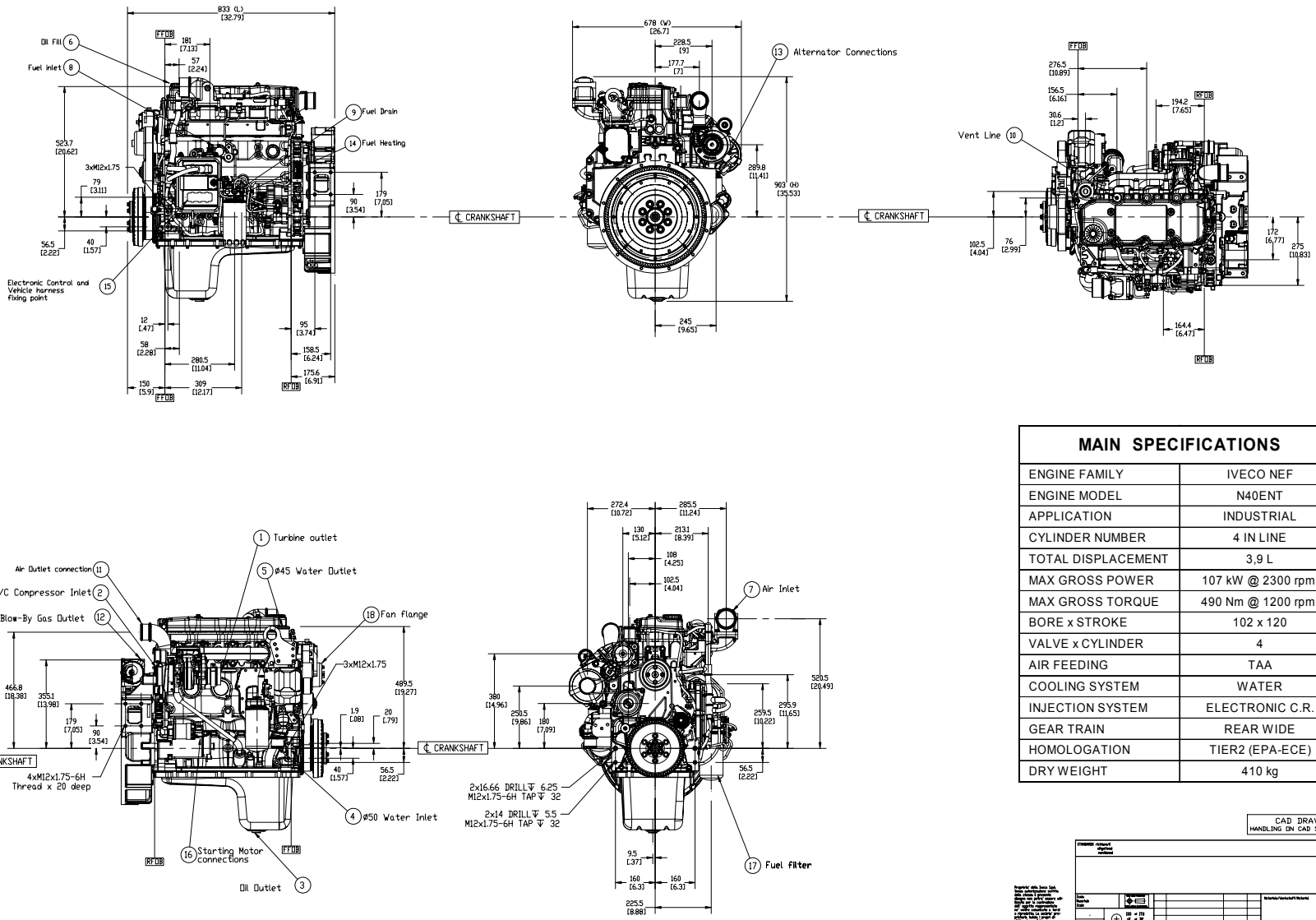
Specifications subject to change without notice
Illustrations may include optional equipment.

NEF 4CYL 4V TAA

N40 ENT



MAIN SPECIFICATIONS	
ENGINE FAMILY	IVECO NEF
ENGINE MODEL	N40ENT
APPLICATION	INDUSTRIAL
CYLINDER NUMBER	4 IN LINE
TOTAL DISPLACEMENT	3,9 L
MAX GROSS POWER	107 kW @ 2300 rpm
MAX GROSS TORQUE	490 Nm @ 1200 rpm
BORE x STROKE	102 x 120
VALVE x CYLINDER	4
AIR FEEDING	TAA
COOLING SYSTEM	WATER
INJECTION SYSTEM	ELECTRONIC C.R.
GEAR TRAIN	REAR WIDE
HOMOLOGATION	TIER2 (EPA-ECE)
DRY WEIGHT	410 kg

CAD DRAWING
HANDLING ON CAD SYSTEM ONLY

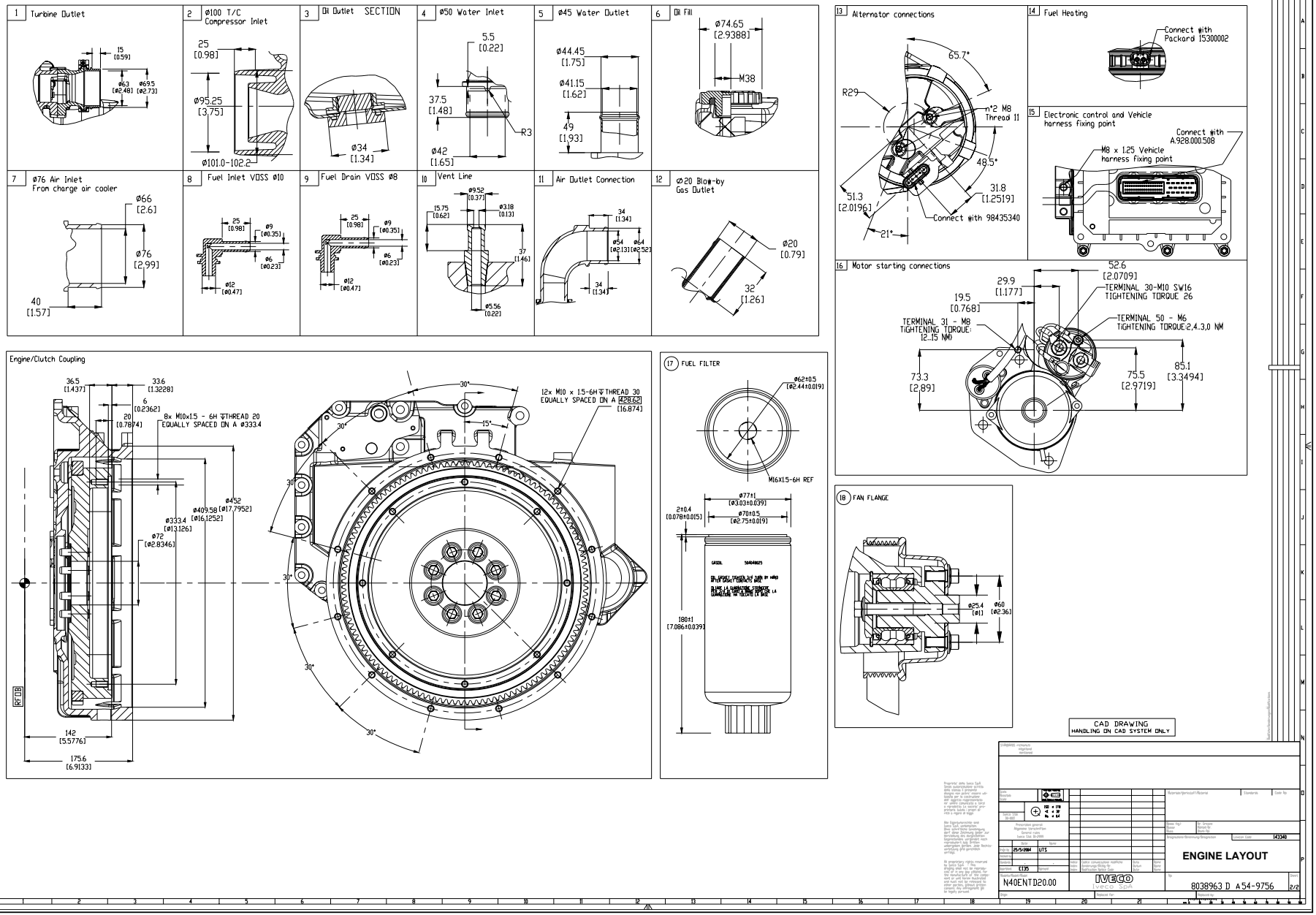
ENGINE LAYOUT

N40ENTD20.00 | IVECO S.p.A. | 8038963 D A 54-9754 | 1/2

Revision date 01/06/04

NEF 4 CYL 4V TAA

N40 ENT



Revision date 01/06/04

N40 ENT

4 CYL - 3,9 L - 4V - TAA - 24V

Main Components	Description
Engine Rating	Max Gross Power: 107 kW @ 2300 rpm; Max Gross Torque: 490 Nm @ 1200 rpm
Homologation	Directive 97/68 EEC - Stage2 & EPA Tier2
High Pressure Pump	CP 3.3 type, left side, cyl#4
Lift Pump	Mechanical, incorporated into the high pressure pump, left side, cyl#6
Gear Train	Rear, wide type
Gear Housing	Rear, aluminium, wide type
Flywheel Housing	Rear, cast iron, SAE #3, wide type
Flywheel	Mechanical, 11,5", Inertia 0,71 kgm^2
Crankshaft Pulley	8 groove - ø 173 mm
Fan Arrangement	Onto the engine ; X=0 mm , Y=296 mm , ratio=1,4:1
Fan	None
A/C Arrangement	None
Noise Panel	Internal, mounted onto the block
Belt Tensioner	Automatic
Main Belt	8 groove
Alternator	70 A, 24 V, W terminal, right side
Engine Starter	4 kW, 24 V, right side
Intake Manifold Connection	OD=76 mm, elbow, frontwards, left side, cyl#1
Turbocharger	Fix geometry, wastegate valve, middle high position, right side
Turbo Inlet Connection	OD= 101,6 mm, middle high position, towards the rear, right side
Turbo Outlet Connection	OD=64 mm, middle high position, towards the bottom, right side
Turbo Exhaust Connection	OD=69,5mm, middle high position, towards the front, right side
Water Pump	Into the block , front side
Thermostat	81°C opening, 96°C closing
Water Inlet	OD=50 mm, vertical inlet downwards, right side
Water Outlet	OD=45 mm, vertical outlet upwards, right side
Engine Oil Cooler	Integrated into the block, right side
Oil Pan	Steel, suspended, front sump, 35° angularity capability in all directions
Dipstick	Vertical pull dipstick, left side, cyl#1
CCV	Oil vapours recirculated by Mann&Hummel valve, on gear housing, left side
Oil Filter	On engine, front right side
Oil Fill	On valve cover, cyl#1
Oil Pump	By gears, front side
Fuel Filter	On engine, cyl# 3-4, left side, single cartridge
Grid Heater	Spacer only
Power Take Off Arrangement	Cover plate only
Engine shipment	No oil. Iveco anticorrosion treatment
Engine Painting	Gray, single coat (60 μm)

LAST MODIFICATION DATE: 06-02-04 12-02-04

SUMMARY ENGINE SPECIFICATIONS APPLICATIONS BILL OF MATERIAL: N40 ENT

IVECO MOTORS

Sheet	1/1
Date:	15-04-04
Check:	Pagnoncelli M.
View:	*Burgazzi*

PRP DEPARTMENT FC code	Optional code	UY EBOM Structure Doc. database assembly. A	Comm. code	Specific Applic.	TECHNICAL DESCRIPTION	CARRY OVER	S Loose supply	X Combining obbligatio	O Combining obbl. choice	■ Incompatibility	Employment limits	IMPACT MATRIX A01020502	A01050501	A08000505	A08010502	A09080501	A09080502	A08250501	A08270502	A18110502	A18120502	A22410503	A41010502	A41010506	A41020503	A41000503	Mod. date
			A01020502	01.02/0	Oil pan inclination 22° front trap			X		■													■	X			
			A01050STD	01.05/0	Oil pan inclination 35° front trap																						
			A01050501	01.05/2	Oil pan inclination 35° rear trap			X		■													■		X		
			A03030STD	03.03	Carter SAE3																						
			A04000501	04.00	Rigid engine suspension																						
			A04050503	04.05	Flexible engine suspension not adjustable SAGA		S																				
			A05040STD	05.04	Intake manifold front axial inlet																						
			A05110501	05.11	Air inlet connection vertical																						
			A05120501	05.12	Air inlet connection side (left)																						
			A08000505	08.00	Fan (puller) Ø500 dist. H=50					■								■	■								
			A08010502	08.01	Fan (pusher) Ø500 dist. H=55					■	Sostituito A08010505							■	■								06/ 02/04
			A08250501	08.25	Fan drive H = 362 , R = 1,35					■				■	■												
			A08270502	08.27	Fan drive on crankshaft axis					■				■	■												
			A08290STD	08.29	Fan drive H = 296 , R = 1,41																						
			A09080501	09.08/05	Power take off arrangement Z=9 PTO SAE A					■										■	■						
			A09080502	09.08/06	Power take off arrangement Z=13 PTO SAE B					■										■	■						
			A09160501	09.16	Hydraulic pump Bosch 16cc				O	■										O	O						
			A10000STD	10.00	Starting motor 24V 4 Kw																						
			A13060503	13.06/8	Flywheel arrangement fot transm. Hydromatik A4VG71																						
			A13110STD	13.11	Flywheel arrangement 11"½																						
			A13230502	13.23/7	Flywheel arrangement for transmission Clark (Flex-Plate 13,125 ")																						
			A13260501	13.26/3	Flywheel arrangement for transmission Transfluid 13SKF																						
			A14170STD	14.17/1	Alternator 24V 90A																						
			A14230501	14.23	Double alternator 90 A - 24 V			X											X								
			A15020STD	15.02	Fuel prefilter		S																				
			A15100STD	15.10	Fuel filter																						
			A17060STD	17.06	Oil filter removable from bottom																						
			A17110502	17.11	Oil filter arrangement						Gruppo filtro olio fornito sciolto																
			A18110502	18.11/28	Air compressor sinlge-cylinder 225cc					■						■	■										
			A18120502	18.12/28	Air compressor single-cyliner 360cc					■						■	■										
			A21210518	21.21/00	Air filter VIRGIS FLK10 (With safety cartridge)																						15/04/04
			A22410503	22,41	Radiator with front guard grating			X		■				■	X					■	■						06/02/04
			A23020502	23.02	Exhaust silencer		S																				
			A32060STD	32.06	Water-motor oil exchanger																						
			A40110501	40.11	Exhaust outlet 90°																						
			A41000STD	41.00	Short oil level gauge LH side																						
			A41010502	41.01/0	Long oil level gauge LH side (for 35° oil pan front trap)					■		■	■														
			A41010506	41.01/1	Long oil level gauge LH side (for 22° oil pan front trap)			X				X															
			A41020503	41.02/2	Long oil level gauge LH side (for 35° oil pan rear trap)			X					X														
			A48010507	48.01	Guard grating fan and belts			X														X					12/02/04
			A71100STD	71.00	Calibration 107 kW @ 2300 rpm																						
			A72010502	72.01/02	Speed limit device qualification first threshold at 90 Km/h																						
			A72010503	72.01/06	Speed limit device qualification first threshold at 130 Km/h																						
			A72010501	72.01/07	Speed limit device qualification first threshold at 85 Km/h																						
			A72020501	72.02/02	Speed limit device qualification second threshold at 40 Km/h																						
			A72020502	72.02/03	Speed limit device qualification second threshold at 85 Km/h																						
			A72020503	72.02/04	Speed limit device qualification second threshold at 130 Km/h																						
			A72070501	72.07	ABS function qualification on can-bus line																						
			A72080501	72.08	Engine brake function qualification																						
			A80000506	80.00	Cab heating arrangement																						